Defective Speech and Deafness

Lillie Eginton Warren

DEFECTIVE SPEECH

—AND—

DEAFNESS

By LILLIE EGINTON WARREN

EDGAR S. WERNER, PUBLISHER
108 EAST 16TH STREET,
NEW YORK.
1895

PRESS OF EDGAR S. WERNER, 108 EAST 16TH STREET, NEW YORK.

CONTENTS.

PREFACE.

THERE are many children in the schools who have a deficient sense of hearing. All of them are not conscious of the fact; yet the deafness may be serious enough to interfere with progress in their studies. Such children are frequently considered dull and inattentive pupils. Many suffer from catarrhal affections and thereby present a variability of hearing, which makes them appear to much better advantage on some days than on others. Thus they add to the teacher's difficulty in distinguishing them from the wilfully disobedient. If one ear is defective and the other not, there will be times when the child hears well, and soon after, having turned his head, he fails to understand and seems indifferent.

The hearing of school children has been carefully examined from time to time by specialists.

In one school in New York, Dr. Sexton found 76 cases, only one of which had been previously recognized to be deaf. The same physician found that an average of 13 per cent. of all the pupils examined had a decided defect in one ear or both ears. Out of 450 cases of deafness in children, selected for observation in private and infirmary practice, 371 were attempting to retain their places in school. Dr. Worrell, of Terre Haute, Ind., found in one school 98 cases of defective hearing, only one of which had been recognized by the teacher, and in an orphan asylum 27 instances, only two of which were previously known. Dr. Barr, of Glasgow, found, out of 600 children attending the board schools of that city, 166 were deficient in hearing. Out of 3,588 children of Bordeaux, tested by Moure, 616 were found to hear a whisper at a distance of from only 1 to 3 metres, instead of 15 metres, which is normal. Gellé, of Paris, found that 25 per cent. of the pupils in one school of that city, presented deafness. In Germany, Russia and Denmark, returns show an almost equally alarming high rate of varia-

tion from the normal; and one authority, Weil, insists that every inattentive child should have his ears examined.

Census returns give surprising accounts of the number of totally deaf persons—so-called deaf-mutes—to be found in this country. It was estimated in 1880 that there was one to less than every fifteen hundred inhabitants, and the census of 1890 gives a larger per cent. The latter fact is not necessarily due to an increased number in proportion to other persons in a community, but to greater exactness in compiling statistics. It should be borne in mind that these figures do not include the adults who have grown deaf since childhood. We know from our personal acquaintance with hard-of-hearing people that many of them are well advanced in years; this, however, should not blind us to the other fact that there are many comparatively young persons who early in adult life are obliged to relinquish active participation in many pleasures and duties on account of deafness. It is estimated that there are about three hundred thousand persons in the United States, under

twenty-five, who have grown deaf since their teens. This statement was recently made in an address by Dr. Alexander Graham Bell. The large number mentioned includes those who are suffering from almost complete loss of aural power. To them should be added those who are somewhat deaf in one ear, those who are obliged to take a forward seat in church and public hall, and those who are conscious of a gradual failing of the hearing sense and are wondering how soon their friends will find it out.

Stammering, stuttering, lisping, mumbling and mouthing are heard in every town and city. Dr. Lennox Browne says the average of severe forms of speech-defects is twice as great as the instances of impaired hearing. To the two general classes, the deaf and the defective in speech, must be added another which properly belongs to the deaf, namely, the children and adults who receive sounds slowly, because they lack quick perception. There are also persons who fail to distinguish particular shades of sound; this peculiarity has been called sound-

blindness. Prof. Le Conte says that, "in so far as the phenomenon is physiological at all, the defect is timbre-deafness. But it is probably, largely at least, a defect of perception and not of sensation, and therefore psychological and not physiological."

The object of the following chapters is to show that fluent speech may be obtained and understood, by all who suffer from the different phases of deafness and the different degrees of imperfect utterance.

CHAPTER I.

THE DEAF-MUTE AND THE STAMMERER.

AT first glance, it would seem difficult to find a reason for classing the deaf-mute and the stammerer together. They appear to be widely dissimilar, yet both are sufferers in speech. One cannot talk because he cannot hear; his organs of articulation are in perfect condition, but his brain cannot prompt them to actions of which it has no perception. The other cannot speak smoothly and successfully because his brain has imperfect control of the organs of speech. It is thus obvious that hearing is requisite to obtain articulate language in a natural manner; and, further, that to insure correct speech something more is needed than an ear to receive sounds and an auditory nerve to conduct them to the brain. There are many activities to be brought into play, the complete and har-

monious development of all being essential to ease and correctness of speech, and the failure of any one to perform its part leading to more or less serious results.

Sounds are received by the external ear, which is marvelously adapted to the purpose, and thence conveyed by the auditory nerve to that portion of the brain whose function is to register such impressions. This path is not open during the infant's early days, the other senses—touch, smell, taste, and sight—being active before that of hearing; and even for a while after it might be presumed to be aroused, there is difficulty in judging fairly of its degree of susceptibility. A loud noise may startle by the vibration of air against the skin just as readily as by the ear; a slight one may appear to be heard when in reality some other sense has happened to be the vehicle of impression. Hence, many intelligent parents have failed to discover deafness in their children until the latter were old enough to be expected to talk.

The first positive proof of hearing is in the child's outcry of pleasure when affected by

music or other sound. A connection is thus established between the ear and the organs of articulation, though it does not imply a perfect working of all the parts essential to correct speech, for there is as yet no language. The pretty cooing of the infant at other times is an aimless play of lips and tongue, unguided by the intellect. As the hearing becomes slightly aroused, linguistic sounds are indistinguishable compared with certain others, but are in some way associated with the human face, which, to the little being, looks like a white space. No relation is perceived between the mouth and the sounds it gives forth, so that the speech of the normal child is not aided by watching that organ; he cannot even imitate any position of it after being able to speak unless he hears something accompanying the movement. Those about the little one talk to it constantly, repeating over and over certain forms of endearing speech and common phrases until they become expressive of meaning. It is believed that the child does not grasp the complete word, but some portion—a vowel, perhaps—fastens attention and serves to

arouse interest the next time. Weeks and months of listening follow; then come efforts to repeat what has been heard, attempts that are crude and widely different from the speech-models. Yet no one doubts the child's ultimate success. He gains in confidence, secures sounds more nearly a repetition of those he has heard, and thus, through the familiar baby-talk, grows in ability to reproduce accurately. All this means a memorizing of sounds, syllables and words, and leads to their grouping to express thoughts and wishes, involving grammatical construction and bringing into action faculties of higher rank than mere memory.

The various phases of speech-disturbance not dependent upon a malformation of the organs of articulation, such as a cleft-palate, are due to some defect in these channels. One child may hear sounds in general, but cannot understand spoken words because it has as yet no storehouse for word-images; another may use a small number of words and be without ability to give them grammatical arrangement; others may frame sentences with noticeable slowness; or, one may

understand, yet owing to want of coördination, fail to repeat, while stammering and stuttering are indicative of some degree of disturbance in the regulation of the speech-impulse. In correctly articulating sentences is secured a mental development obtainable in no other way.

Such being the case with children who make an attempt to talk, what is the condition which leads to complete dumbness? It has been supposed to be a defect in the middle ear or auditory nerve; and such, indeed, is the difficulty in all instances of deafness resulting from scarlet fever and other inflammatory diseases, during the progress of which the mechanism of the ear is injured. A knowledge of the various activities necessary to insure hearing, however, compels us to consider the possibilities of feeble perception of sound in children who present little or no history of ear-trouble. Because a child does not respond to noises, he should not be judged wholly deaf. He may suffer from an extreme condition of slowness of hearing, which, if undeveloped, justifies the use of the expression, suppressed hearing. If he fails to recognize

one sound, another is made before the first has reached his mind. He must be taught that there is such a thing as sound before he can respond to it. The brain that fails to perceive cannot prompt to action. It has been demonstrated that this condition can be reached, and the child taught to use, in some degree, the power he has not realized naturally.

CHAPTER II.

THE VERY YOUNG DEAF CHILD.

AS previously stated, touch, smell, taste and sight, are actively aroused before hearing, and perform duties in place of the ear in cases of deafness. All these senses are rightly considered avenues to the brain, various portions of which make use of the impressions thus conveyed. A person having an impaired condition of any one of these senses, particularly of sight or of hearing, is, in consequence, liable to a warped development. Though the others serve excellently as substitutes, they fail to take fully the place of the one defective or lacking. This is not noticeable in early infancy. It is difficult to detect the absence of hearing during the first twelve months. The very young deaf child goes through the usual baby cooing, which is an unconscious action of the organs of speech, a play

gone through before any will-power can be manifested in this direction. The eyes are quietly alert, having perhaps fewer unnecessary movements than are usual with the normal child, and the facial muscles possess a certain inertia. Later, while the hearing child is going through the process of listening and storing up material for future speech, the deaf one's eyes are taking in far more than is usual in early years, and noticing many movements made daily by people which seldom if ever attract the attention of persons endowed with a complete auditory apparatus.

This is the first discernible characteristic of the child suffering from lack of orderly development of the speech-faculty through deafness, which distinguishes him from his more fortunate brothers and sisters. Then the playful formation of syllables ceases, silence follows, and later a series of more or less unpleasantly harsh grunts and screams are made. The other senses become more acute; the facial movements are exaggerated and serve to express the thoughts and feelings; the hands spring to the child's aid

by feeling the shapes of various objects, and later going through the same motions from memory to describe or to ask for what has been seen. In this way signs become a means of communication. Those voluntarily employed by the child are termed natural, because copied from what he has seen people do, and they differ widely from the arbitrary signs used in the education of deaf-mutes. The latter are developed by hearing persons to maintain a mental discipline for those pupils to whom little or no speech is given.

The various acts of daily life are gone through in pantomime, as the putting on and off of hat and coat, which gestures soon do duty to express going out and coming in. Any peculiarity of feature is noticed and imitated as far as possible, the child not hesitating to call attention to a large nose or to a deformed hand or foot. He should not be considered unkind in so doing. He is merely in an observant state, wholly oblivious to the effect it may have upon others. He is but awakening to a realization of his surroundings.

This is the period when parents and others discover that through the sense of hearing the affections are reached, and that the deaf child is cut off from an important means of cultivation. Those who recall the many times that sounds have changed their current of thought, brought new views to their mental eye, and broken a gloomy or wilful mood, should try to realize what it would be to live without such influences, before judging harshly of the deaf one's tenacity of purpose and continuity of thought.

> "In sweet music is such high art,
> Killing care and grief of heart."

Constant efforts should be made to understand the child's point of view. His mental range is limited, indeed; an avenue of communication, and that one of the most important, is closed. Only half-impressions reach him, giving many a twist to his mind and puzzling his little brain. He bends all his energies to the one path he sees before him, the carrying out of his will. This is the time to instill obedience. Don't wait for some other moment; don't let him realize the power of a

"scene." He can be taught now that certain behavior brings punishment. He is not too young to appreciate cause and effect as taught wisely and kindly in the nursery. His future happiness and usefulness depend upon this early training. The child who is obedient has developed an amount of self-control that will assist him in every undertaking of life. It is a great injustice to deprive him of this shield under the belief that he is happy now to be allowed to break a toy, or play with a sharp knife, try the scissors on the table-cloth or strangle the cat; and that sometime—some more favorable time—we will teach him not to do those things. That favorable time never comes afterward. Now is the moment. There is no reason why deaf children should not be obedient. Their physical welfare more often depends upon instant obedience than is the case with those who hear. As they grow older, they have the same impulse as others to strike out for themselves, to be independent of the staying hand. They become restive under constant handling. Out of reach and wilful, they are in danger of accident; out of reach and

trained to obey a warning look or gesture, they have a means of protection.

It is often urged that the deaf one's disposition not to give up an idea once determined upon, makes it almost impossible for him to develop readiness to follow another's wishes. To overcome this tendency is a severe trial to the patience of the adult in charge. Remembering the child's imperfect perceptions should cause us to avoid hasty actions. Give clear proof to him that you understand him, that so far as it lies in your power you wish to grant him every rightful pleasure. If you feel it in your heart, he reads it in your face. Hearing is not necessary to enable a young mind to know its friends. When the time comes that you must oppose his will, do it firmly but gently; give him no punishment that affords him a chance to retaliate. Pinching and slapping are ignoble expedients which he can imitate. He has no respect for them. Firmness of will, accompanied by calmness and what might be termed dignified forms of punishment, awaken his respect, and respect commands attention; hence, the child is in a

reasonable mood. He is too wise to waste strength in tears and kicks when he knows they will be unavailing. It is the one who carries his point by so doing that indulges in such methods.

The child's conscience is formed from the series of impressions he receives in the decided approval or disapproval in the faces about him; and in time those alone are sufficient to command obedience. Doing right from an intelligent perception of its utility or nature *per se*, is far beyond him, but doing right because one he respects and loves shows him it should be done, is within his power and exerts a most happy influence. Thus obedience is obtained by an appeal to the affections through the eye, and depends upon example. When this becomes a habit, it stimulates and develops the sentiment or love of justice for its own sake. Pictures are formed in the mind of the child by what he sees, and from them he reasons. Mental advancement in cases of defective hearing requires obedience for its cornerstone.

A healthy mind is dependent upon a healthy

body; accordingly, it is proper to consider the hygienic care which the deaf child requires. There is no disguising the fact that it is hard work to take care of children, and the labor is even greater with those that present some defect. It is always more or less difficult to carry out in practice much that we accept in theory. The child whose food is regulated with wise care in his early days is the one who will not be a slave to his appetite; it is wrong to pamper to his whims, and later to expect intelligent selection and temperate use of the good things of life. A certain amount of nervous force must be used in the act of digestion; the more that is drawn upon, the less there is left for other uses. It is quite possible to become nothing but a food-digesting machine, but surely there should be something nobler in our aspirations.

Many children, but often the deaf ones, are catarrhal subjects, and their tendency to congestion of the mucous membrane may be lessened by regulating the quantity as well as the quality of food. A distinguished authority has said: it is better to eat sparingly of what may not agree

with one than too heartily of what is simple. There is a growing conviction that more are suffering from being overfed than underfed. Unquestionably, many parents would be glad to be instructed as to what is best, for ignorance is often the cause of neglect. It would seem an important work to enlighten the well-meaning but often misguided mothers of the rising generation on the subject of food; it would reduce the number of weak ones, make the strong stronger, lengthen life, promote happiness, and set in motion a chain of events that would benefit posterity incalculably. The world is full of all that is excellent for sustaining bodily health. Intelligent use of proper nutriment will give a good physical foundation, without which intellectual advancement and pleasures must fail to accomplish their legitimate effect. The chemistry of food is becoming an exact science. Difference of opinion regarding it exists with those only who are not familiar with its principles. Surely the time has come for its application to others than the persons who are training for athletic sports.

"Cold in the head" is a frequently mentioned cause of ear-disease. This fact is not surprising when it is remembered that the mucous membrane lining the various cavities of the head, is a continuous surface. Lack of proper care may drive a state of congestion from one part to another. A susceptibility to ear-trouble renders the organ of hearing a weak spot which is soon assailed; the lining of the Eustachian tubes may become swollen, and thus prevent the free entrance of air to the middle ear, or the inflammation itself may extend into that cavity. It often happens that a slight preëxisting deafness may be made known for the first time to the patient by a cold or a reduced condition of the system. The tendency to ear-disease, and, indeed, to any phase of catarrhal affection, can be kept in check by care in clothing, ventilation, bathing and food.

A discharge from the ears should never be allowed to continue. Salt water remaining in the auditory canal may cause inflammation; and instances are on record of surf-bathers having the drum-head ruptured by the waves. Boxing

the ear and an imperfect drying of the organ have been known to cause serious results. When the fact is remembered that the confirmed mouth-breather not only acquires marked facial peculiarities but also frequently develops deafness, let us resolve to shut our mouths, and "stretch the nostrils wide."

CHAPTER III.

SIGNS, FINGER-SPELLING AND SPEECH.

WHAT the deaf child may become if allowed to grow up without education is not a pleasing picture to face. The past has known what it is. Until a humanitarian spirit lifted the deaf-mute out of the depths by giving him instruction by signs, he was neglected, pushed aside, hidden from view. He was repulsive, intensely ignorant of anything beyond food and drink, and looked upon as an irreclaimable idiot. Happily that is no longer the case. The sign-teachers arranged a system of education which put this class of persons, previously supposed incapable of advancement, upon the level of thinking, reasonable beings, living happy lives because useful. Such results have followed from giving them language. Language is the want of the deaf child that must be supplied be-

fore he can progress in mental development. Max Müller's theory that there is no thought without language cannot be accepted by anyone who has watched a young deaf child. Thought certainly exists without words, but must have aid from them or from signs for expression and growth. Language, the clothing of thought, leads to the comparison and modification of ideas, the presentation of new views, the removal of false impressions, and the stimulation of intellectual activity. Without this vehicle of expression the human being is as isolated as he would be on a desert island, with the added disadvantage of having a mind utterly incapable of rational comprehension of his surroundings. He would be the victim of every wave of sensation rushing through him, and wholly ungovernable. We live in a world of apparent truths; to the deaf child without language they are real.

We are familiar with the manner in which language is obtained by the normal child. It is a long process, going on so quietly that we seldom think of its wonders. It is only when it

fails of accomplishment through defect in the organ of hearing, through lack of perception of sound, or through malformation or absence of control of the organs of speech, that we stop to consider it.

Being without a knowledge of sound the young deaf child has no idea of words; for him they do not exist. He lives in a world of silence. The facial expressions of the people about him and the gestures they use are noticed by him. He responds with similar signs. His mother understands him, and he thrills with the pleasure of being in communication with another mind. A fresh impetus has been given to his thought, and he has taken a step in mental development. He has a language, meagre though it be. By the use of simple signs thus voluntarily employed by the child and reciprocated by parents and friends, he grows in perception of much that surrounds him. An avenue has been found for the brain struggling for an outlet.

If the child is sent to a State institution, a variety of objects are placed before him, and he learns to designate them by the expressive

gestures used by the teacher. These gestures are devised by hearing persons, and are often arbitrary. Later, a list of names of objects is written upon a slate or a blackboard. As the pupil knows nothing about writing, these words are mysterious hieroglyphics to him; but he is taught their meaning by the teacher pointing to an article, giving the already familiar descriptive gesture, and then showing the written name. Thus through signs the pupil is taught to write, and in the written word he receives his first insight into the language used by persons about him. What his hearing brothers and sisters learned in the cradle is thus revealed to him much later in life. He cannot pronounce the word, but he can write it. He learns the positions of the hands which express the letters of the alphabet, and then he can spell the word with his fingers.

Notice the difference between a conventional sign and finger-spelling. The latter is just as much English as the printed word. Therefore it is an indication of higher development when the child drops the sign and spells the word.

Both denote ideas; the sign may be vague and indefinite, but the word is a specific expression of his thought. As he gains in ability to spell and write the words in the orderly arrangement of a sentence, the pupil becomes clearer in thought, his misconceptions are removed, and his intellectual activities are aroused and expanded.

It has been said that a child is born into the world with more intellect than talent for language; but the development of his intellect certainly depends upon the perception of language, and emphatically upon its use. It is not enough to have ears and to listen. One must give out his own thought; he must be in reciprocal relation with others.

The deaf child taught by signs, finger-spelling and writing can make himself understood by others through the same mediums of communication. The written words would be intelligible to the many who can write, and the signs and finger-alphabet only to the limited number who are familiar with such modes of expression. Yet the child is not using the most

satisfactory of all methods of communication. He has not spoken. He is a deaf-mute, mute because deaf. If he should be allowed to remain in this speechless condition, he will always have the mark of a neglected education. Hearing is not absolutely needed for the acquiring of articulate speech, because the increased acuteness of the other senses may be used for the purpose. Even if the child has no articulate language with which to ask questions, and thus is obliged to gesticulate, teach him to look for replies in the faces of those about him. Talk to him constantly. In this way is laid the foundation to the speech-reading habit. Less than thirty years ago the deaf were not taught to speak: now those who are placed in the large State institutions may receive a greater or less amount of such instruction; while all who attend so-called oral schools are given speech without the use of signs, and by speech instructed in the regular studies of children of their age.

Dr. J. C. Gordon, of the National Deaf-Mute College, at Washington, D. C., recently stated that the brain-structure of those deaf pupils who

could speak and read the lips has been found to be different from that of scholars who were not taught to articulate; and as brain-building means mind-building, this is an excellent reason for giving speech and lip-reading to the deaf. If, to this knowledge of articulate language and the ability to understand others by watching the varying expressions of their faces, there be added some degree of hearing, brought into use by educative means, a fresh impetus is imparted to the mental growth of what might have been a deaf-mute.

Many persons who possess a full vocabulary manifest less talent in arranging words than others whose stock is more or less limited. In the apt expression "sentence-building," we have light thrown upon the faculty that directs this work; for one must have mechanical ability in order to form strong and well-constructed sentences. Among the deaf there is good perception of the form, size and weight of objects, but a hampered constructive talent. Unquestionably much of their difficulty in building sentences might be removed by attempts to remedy this

deficiency. Everything that sets in motion a train of thought in regard to the putting together of parts of objects, is helpful preparation for the language-lesson; and all teachers who forget the fact that a sentence is built by mechanical talent, ignore one of the chief factors called into action. Thus, simple gestures form a language for the little child; the carefully-constructed system of arbitrary signs presents a means for awakening and disciplining the mental faculties; the written sentence expresses the more exact thought; but speech exercises a still more complex nervous mechanism. If there should be doubt about this fact, consider the stammerer's case. He knows to his sorrow that comprehension alone avails him little, and that being without full command of his organs of articulation, he is at a positive disadvantage.

CHAPTER IV.

TEACHING THE DUMB TO SPEAK.

INTELLIGIBLE articulation in a child who has never heard, seems like a miracle to most persons; yet it must be plain to everyone that such a child, while uneducated, could not speak merely because he could not hear. His vocal organs were not impaired. Speech is the variously modified emission of breath. The deaf child surely has breath enough for vital purposes, why not for vocal? Use is the grand end of all faculties; therefore, persons who possess organs of articulation should exercise them in their various functions. Life is kept in the body by the air received through the nose, and sometimes, unfortunately, through the mouth; but the person who does not know how to exhale the same air in speech or in song, does not fully develop his lungs. The dumb person

is, therefore, especially liable to pulmonary troubles. By this statement I do not mean that everyone who speaks or sings uses his organs properly; it is, indeed, often the reverse. Who has not noticed the audible breathing of a singer, by which the beauty of his, or more frequently her, vocalization is seriously marred? How few can read aloud, even in a small room which does not demand any strain of voice, without feeling a sensation of breathlessness. Unquestionably there is much room for improvement in the lung-capacity of most people. No one, however, is competent to teach a deaf child to articulate, who has not a scientific knowledge of the mechanism of speech.

A child's happy state is absolutely the first essential for securing a warm or affectionate tone of voice, because, even among the hearing, such a condition of mind relieves the vocal bands from unnatural tension. The prompting to action of the organs of speech comes from the affections more than from the intellect. We will to speak before we can go through the act of articulating. If moved by pleasurable sensa-

tions, the quality of voice is smooth and agreeable; but if any intensity is felt, the tone reveals that condition to the alert listener. Hence, the first fact for the teacher to bear in mind is that all methods that fasten attention upon any part of the child's body, such as the throat or the chest, cause the vocal bands to act in an unnatural manner. The development of pure, resonant tones must depend upon the pupil's thoughts being thrown out and away from himself. The purpose of voice is to reach someone. All vocalization made without a directing or a projecting of thought toward another being, present either in reality or in imagination, lacks true life and becomes smothered and dull in quality.

There is no better way for the deaf child to exercise his lungs in a healthful manner than to blow papers or feathers about; it is equally useful to the hearing child, though perhaps not so imperatively demanded. The act of blowing throws the air in the lungs through the relaxed vocal bands; and because the child's attention is directed to something at a distance, there is no

unnatural tension. The pupil is not aware of how he is managing his breath. That is as it should be. In the rapid flow of conversation, we certainly are not conscious of how our organs of speech are acting, or, rather, we should not be. If we are, there is manifestly some defect in our speech, and the seriousness of the defect is in proportion to the amount of our consciousness.

The foundation of a structure should be well laid; the action of the pupil's lungs, accordingly, should be correct. That being assured, one is well supplied with the material of speech —the breath. The next step in attaining good articulation is to secure the adjustment of the vocal bands that will convert this breath at will into pure voice. This is attained by a careful approximation and tension of the cords; and the teacher who understands the proper workings within the wonderful voice-box, as the larynx is termed, will produce results with the pupil's delicate instruments that the ear will recognize as agreeable tones.

The voice formed in the larynx is molded

into the numerous vowels by various positions assumed by tongue, lips and soft-palate, and into consonants by decided actions of the same organs. Vowels are the life of speech; in them lies expressive voice. The consonants are the receptacles giving temporary limits to the vocalized breath. Thus the secret of agreeable voices among the deaf is instruction based upon perfect action of the edges of the glottis. This assured, vowels and consonants may be combined, and thus words are formed. The hearing child has listened for months before attempting to talk, having gradually gained confidence in the use of his own organs, and imitating as nearly as possible the sounds he hears about him. His first efforts are very crude. Yet, as we have already recognized, no one doubts his success. Let the same confidence be manifested toward the deaf child in his early lessons. It will be seen that care in securing correct positions for sounds brings out lines of beauty in his face, which was previously disfigured by unpleasant and unnecessary movements.

How is the pupil to understand the meaning

of the words he learns? It is necessary to explain them by the natural signs he knows; and thus his first spoken, as well as his first written words, must be equivalent for the same objects he has designated by a gesture, for the daily actions going on about him, or for the qualities he has appreciated by taste, touch and smell. Single words thus become intelligible to him. He drops the sign or the finger-spelling and speaks; his vocabulary enlarges. Now a new difficulty presents itself. Of the grouping of words to form phrase or sentence the pupil has no knowledge. Moreover, when they are grouped he does not grasp the shades of meaning which they convey to the hearing person. He is likely to say "sugar like," to express his fondness for the sweet; "horse car go," to him means "I shall go in a horse car." He has no use for "a," "an" or "the." He is contemptuous of the changes of tense, and is baffled by idioms.

No one can realize without experience the need of patience and ingenuity in the teacher who imparts language to the deaf child. No

one can have sufficient of these qualities who does not strive to keep in mind the pupil's limited range and thus bear with his ignorance. The hearing person studying a foreign tongue has his own language to help him. The grammar can be remembered because similar or dissimilar to his own; the arrangement of words by resemblance or want of resemblance to the forms in his mother tongue. Nothing of the kind is present in the mind of the child born deaf. He knows no reason why words should be arranged in a certain order. Day by day, certain forms are repeated until, brought into play on every appropriate occasion, they are used spontaneously. Fortunately, the pupil does not know what is before him. Ignorant of the amount he has yet to learn, he absorbs his daily allowance of language, his ideas expand and his mind unfolds. All is delightful to him. It is the teacher who feels the great work to be accomplished.

Instruction in speech through the eye cultivates in that organ the ability to follow the varying expressions in the teacher's face as

quickly as they appear, and thus to receive thought through that medium instead of by hearing. Persons reading this statement will look up at someone present, and, after watching the face in conversation, will wonder how it is possible for any being to follow the movements seen and thereby understand speech. They attempt too much at once. Preliminary steps must be taken. The little child just beginning to read cannot scan a page quickly. Success in speech-reading means an education of the eye secured by long practice. Its attainment by the deaf child grows with his knowledge of spoken language. The wonderful organ which gives us so much happiness, and which we find, early in life, can carry messages to the brain in behalf of some dormant sense, must concentrate its gaze upon a small space,—the human face. The range is limited and thus more detail is noticeable. Attention is not diverted by general movements embodying arbitrary or natural signs, to the hand and arm, or to the whole figure. There is an opportunity constantly to increase an appreciation of shades of expression, just

as a discernment of the nice distinctions of well-chosen words may be attained. The result is that the deaf child follows in the face of another the details of a story with all the relish that the hearing would have in listening. There is no staring, but simply a quiet, steady gaze.

Correct, fluent speech, with a more or less agreeable voice, and the ability to understand others by watching the facial movements, may be acquired by the boy or the girl suddenly deprived of hearing by illness or born deaf. To secure these desirable gifts, the pupil must be educated by a system which gives speech in the early years and imparts all instruction through that medium. Prof. A. S. Hill, in calling attention to the poor showing in written language, even among the college-bred, dwells upon the importance of practice sufficient to enable the pupil to write without consciousness of the mechanical difficulties; he defines that as the first essential in efforts to acquire a good style. "A boy must have written much before he can form his letters without special pains; and much more before he can set down what he has to say

without stumbling over punctuation, spelling and grammar; and more still before he can write with facility."

Upon the same principle, the deaf child must articulate words long before he can do so readily; must speak in sentences long before he can do so fluently; and must talk on every occasion to his teacher, to his mates, in his lesson, and in his play before he can do so easily to the stranger and in society. Practice is the only means by which spontaneous use of the vocal organs may be attained. Nothing else will do away with a consciousness of the mechanical difficulties. In this healthful exercise of the lungs lies the prevention of pulmonary diseases to which the deaf-mute is peculiarly subject.

CHAPTER V.

THE CHILD SUDDENLY DEAF AND THE CHILD GROWING DEAF SLOWLY.

DURING childhood an illness such as diphtheria or spinal meningitis may cause serious if not complete deafness. As the patient recovers strength, he finds that he cannot understand other people. His own speech becomes sadly affected, thick and indistinct, and his voice changes to an unnatural tone; or he may lose what little prattle he formerly possessed. If he should be under a year in age and had not spoken, his deafness will not be known for a time; long-continued silence on his part, however, will reveal the truth. Such a child is too young to realize what has befallen him; and though he has perceived sounds for a number of months, and development of the speech-faculty has, in consequence, begun with him, he has little

advantage over the child born deaf. However, of that little, much can be made, if his organs have not been so injured as to render them useless. The trouble is that, too often, valuable time is lost before his condition is realized.

Various intricate workings of the brain have slowly brought out the speech-faculty in the older child; and when we remember that the moral effect of such an experience is great enough to make the use of the word "hearing" synonymous with "obedience," it will be evident that his mind is in a very different condition from that of the child born deaf. However, he is just as unable to understand others. He is overpowered by the silence, even half maddened, and frequently gives way to violent demonstrations of his irritability. Great patience and forbearance must be exercised toward him. Yet the necessity for some degree of discipline is obvious, because he may expose himself to danger, or injure others in his outbursts of passion. His articulation may become unintelligible. Not very many years ago, such children were forbidden to speak when placed in the institutions.

Fortunately, this cruel silencing is no longer enforced, and now earnest effort is made to preserve their speech, even if, in the same school, pupils born deaf are not taught to articulate.

To retain the speech of the child stricken with deafness, is an imperative duty, but it is not all. He should be taught lip-reading, or speech-reading, as it is sometimes called. Perhaps he was not old enough to attend school before his illness; in such cases no time should be lost in beginning his education. Even if he remains weak and languid, as he often does after such an experience, a few minutes of daily instruction will do much for his happiness by giving employment to his mind.

Some authorities go to the length of calling lip-reading a species of sign-reading. They argue that the movements of the lips are signs made by them just as much as the motions of the hands are sign-meaning gestures. It may not be necessary to differ from this opinion beyond the suggestion that the movements of the facial muscles are results of the actions of the articulating organs, and are not any special mo-

tions made for the benefit of the deaf. If such demonstrations are classified as signs, it may be as well to state that hearing is but a species of feeling. A light pressure upon the skin is perhaps recognized more quickly as a sensation of touch, but in reality is no more so than is the pressure of a wave of air against the ear-drum. Whether lip-reading be called a sign-reading or not, it is certainly a highly satisfactory method of communication, and use of it brings the deaf child or adult more nearly on the plane of the normal human being than anything else can.

Sound may sometimes be appreciated by bone-conduction, and at times it is puzzling to decide whether the ears have acted or not; for, if one defective ear be tested while the other is closed by pressure of the finger, the impression to the patient is that he has heard with both ears. Indeed, he may hear equally well when both aural organs are closed. Dr. Alexander Graham Bell converses with his mother, who is profoundly deaf, by placing his lips on one of her closed eyes.

The young child rendered deaf by disease

should be carefully studied in all these ways, and every means should be employed to retain a perception of sound. At the risk of repetition, I would urge the necessity of wise training. There have been instances of children suffering from impairment of hearing, who were allowed to do as they pleased until they became the terror of their acquaintances, and their undisciplined minds proved capable of devising disastrous mischief. If the child becomes completely deaf, he is obliged to use his eyes to some advantage; but if he retains hearing enough to perceive loud sounds, and he is not properly trained, his eyes are of no more use to him than his ears are. He is a lawless being, noisy and unlovable. His lower nature develops faster than his higher, and his moral perceptions become blunted.

There are many educated persons who lost their hearing in early childhood and retained their speech, but who have only recently taken up lip-reading. They regret exceedingly that they were not taught this art from the first. One undertook the study because a change of circumstances required every exertion that she

could make. So much enlarged have been her experiences in consequence, that she says with enthusiasm that "the best thing that ever happened to me was to be obliged to earn my own living." Others are equally eloquent in stating that despondency has been dissipated by this brightening influence in their lives. A teacher and editor who became deaf when fourteen has learned to read the lips during the last four years. He says that frequently it seems to him that he hears the words which, in reality, he has only seen revealed in the faces of those about him. Such experiences should prove the great importance of giving this power to every deaf child, but most particularly to everyone who has once heard and thus already possesses language. I would again urge that such instruction be not deferred until the deafness is almost total. Let lip-reading be considered a necessary part of the education of all who lack normal hearing. Its use will relieve the strain of attention on the ears, and frequently make it impossible for others to recognize the aural defect, which would otherwise be very apparent.

A change of circumstances has been known to arouse to action a small degree of hearing that remained after illness in infancy. An interesting instance was a child of American parentage born in India, who was brought to this country in a sailing-vessel. In the long weeks of quiet on board the ship, the little one awoke to a consciousness of vocal sounds that were before unnoticed, and she then made her first efforts to speak.

When the deafness resulting from disease is but slight, the child is much more likely to be neglected through lack of knowledge on the part of his parents as to what his condition demands. He is sent to school, where, perhaps, the fact that his hearing is impaired may not be known by the teacher. He may be aware that he hears badly; he certainly cannot turn both ears at the same time toward the person speaking, and thus in his anxiety he forms the habit of listening with only one ear. Both may have been equally good, but continual effort of attention through one renders the other useless. The child should be taught to use the left and the right ear on

alternate occasions. His deafness may be so comparatively slight at first as to be scarcely noticeable; but frequently that is the beginning of a progressive disease, which slowly shuts the individual out of the world of sound. He seems inattentive at times. It is seen that he shrinks from meeting strangers, and after a while, that he understands when one person talks with him, but is confused by the conversation of two or more people. At school he may be censured for the indifference he manifests in recitations; or he may grow mischievous and be given a seat in the back of the room to prevent him from attracting the attention of other pupils. In that case, being farther off from the teacher than before, he is less likely to keep up with the grade of his class, and is dropped for someone else to struggle with.

Such treatment is undeniably injustice; and it would not be usual if instructors of young children were acquainted with general facts regarding the sense of hearing. A child possessing but a small amount of aural power, who has once had a good perception of sound, could

maintain his place in any ordinary school if, from the first manifestation of his deafness, he were taught to use his eyes in the place of his ears. Special instruction would probably be necessary in order to give him the general principles of speech-reading; but it would be well for him to be thrown in contact with children of good hearing. For the sake of his future, he should not be set apart as one necessarily different from others because deaf. He must live with hearing people in adult life, take his part in the business or professional world, and find pleasure in social intercourse with his equals in refinement and education. What, therefore, could fit him for such experience better than school life with children who are not only free from defects of aural perception, but whose senses are all in normal condition, and whose minds are possibly models of symmetry and grace?

CHAPTER VI.

HEARING CAN BE IMPROVED AND DEVELOPED.

THERE are various kinds of deafness. We will consider first that which is due to functional disability of the ear. This may be serious enough to cause complete loss of hearing, or so slight as to be little noticed except by the individual himself; between these are many degrees. Everyone knows among his acquaintances persons who are suffering from sudden or progressive deafness, dating from a disease such as scarlet fever, or from a succession of severe colds of a catarrhal nature. We call them hard-of-hearing people. They have learned to speak in the normal manner, and by that means have obtained a knowledge of the structure of the language, and are perfectly familiar with linguistic sounds. In consequence, they can make intelligent use of the amount of hearing they

retain. Such persons can be assisted by means of a conversational tube or hearing trumpet. Street noises and the rumble of a railroad train increase hearing-power in many cases. The pleasure arising from the use of these mechanical aids is oftentimes great enough to cause changes in habits and tastes.

Let us emphasize the fact that all impressions conveyed through diseased ears in adults can be made use of directly. This is also the case with all children who had sufficient hearing to enable them to speak at the normal age. All the complex nervous mechanism necessary for articulate speech obtained in the natural manner has been set in motion; the only hindrance is the more or less serious inability of the organ of hearing to perform its duty.

If, however, the impaired usefulness of the ears should be present in a marked degree in very early childhood, it would render impossible the months of listening without conscious effort by which the speech-faculty is developed in the normal human being. We have then an instance in which the child receives sound impres-

sions imperfectly, and from the fact that he has never known them otherwise, he cannot make use of his ability, though it be of the same degree possessed by the hard-of-hearing adult. He is utterly unaware of its possibilities. He is, to all practical purposes, extremely deaf. Without special instruction through the eye he remains mute. While we believe that the importance of articulation and speech-reading obtained in this way cannot be over-estimated, we should not forget that all the mental operations of the normal human being are attained by very different processes. Just as the teacher trains the hand in the mysteries of writing, he should be prepared to educate to some degree the given amount of hearing. We must carry out nature's method of teaching the child to hear. Whatever mechanical aid proves beneficial should be employed. All that is done in this direction is rightfully called a means of improving the hearing.

However, an impaired condition of the middle ear or of the auditory nerve is not the only cause of deafness. There are many instances of chil-

dren presenting little or no history of ear-disease. It has been usual to believe deafness in such cases to be due to malformation or arrested development; many times it is lack of perception of sound instead. Presuming the middle ear and the auditory nerve to be able to perform their functions, if there is a dormant condition of that portion of the brain whose duty is to act with them, the consciousness is not reached. The child does not know what sound is. He is as completely beyond its influence, as we are unmindful of the striking of a clock or of some other noise when we are deep in a "brown study."

Here is a serious defect in the perceptive functions of the brain. Educative means are helpful in arousing some degree of activity in these cases. Instrumental aids are not of value. Great volume of sound must be avoided, or else there is shock and confusion with utter inability to distinguish differences. Noise is a source of worry. The instruction by ear should be entirely unaided by the eye, to follow nature's plan. If vision and hearing are allowed to work

together, no memory for sound is formed, but merely another appeal is made to such impressions as have been obtained through the eye. The results are that the pupil retains any peculiarity of utterance he may have acquired, and a certain amount of tension of the organs of articulation due to long-enforced thought of them, while he can seldom understand a new word unless he sees it pronounced. On the contrary, instruction which compels the hearing to rely upon its single efforts gives in time the power to appreciate the various elements of the language; and, as all words are but arrangements of some few of these same elements, new ones can be repeated as readily as familiar ones.

This kind of instruction assists the developing of hearing. It is slower, and entirely different from the educating of that which has become impaired by organic disease and is already known and appreciated by the individual. Various sounds are recognized and enjoyed before the human voice is noticed; the power to determine the source of these sounds grows by constant practice; words are heard when spoken near the

ear, their familiarity admitting of longer distance later; memorizing of these words finally takes place, and even after the child can hear and repeat, there is a noticeable slowness in the process. Then follows the ability to remember several words and to repeat them in the order in which they were heard. Later, a complete sentence is appreciated, and a reply of some kind promptly given. It is evident that reasoning from facts obtained through the hearing is much slower in these children for a time than is the case when the information is received through speech-reading, thereby proving the presence of a new activity.

Thus, "improvement of hearing" refers to relief from functional difficulty, and "development of hearing" to special mental discipline. In cases of functional difficulty, as previously mentioned, a gain is perceptible much sooner than in the cases of lack of perception. There is also much more slowness in the prompting of the organs of speech when the latter exists, such slowness as to make the practical use of the hearing possibly a small one. Yet all must

admit that a little hearing is better than none. The children's minds have been opened to some of the beauties of sound, and words expressive of such ideas have assumed a different meaning. A parallel is found in those individuals who were born blind and have been relieved by operations. Reports of such cases are very explicit regarding the inability of the patients to make use of their new power for a while. They were taught to see; let the deaf be taught to hear.

Remarkable results have followed the careful development of the auditory sense in children who were previously judged to be wholly deaf. Therefore, it is fitting I should urge that hearing receive the special attention it deserves. Instruction is defective which does not include the education of every sense. That which enters by the eye appeals to the intellect or understanding and thence to the affections; that which enters by the ear appeals directly to the heart as well as to the understanding. When both eye and ear are cultivated there is a sin-

gular association between colors and sounds; under certain conditions, the exciting of one sense increases the acuteness of the other and the different sensations reinforce one another.

CHAPTER VII.

HOW THE HARD-OF-HEARING ADULT MAY ENJOY CONVERSATION.

TACT is the great essential for the adult who is growing deaf. He needs presence of mind on all occasions of social intercourse, even if they be limited to members of his own family or to business and professional associates. In the first place, he should command the situation, and not let any person go behind him. He must be ready to see who is going to speak, and, as far as possible, should hold conversation in his own hands. The very effort thus to be alert will call out his reserve force, and his attentive condition will keep him in touch with others. Do not refuse to use artificial aids to hearing. Conversational tubes and trumpets may not be as commonly employed as are eyeglasses and spectacles, but they would

be nearly as much so if persons who need them were willing to show them. Try all, and finding that some one kind helps you, carry it always and adjust it on important occasions, if on no others. Do not get into the habit of using but one ear; make an effort to use the poorer one sometimes.

Certain forms of aural trouble, including noises in the head, may be relieved by an operation. The drum-head is removed, the middle ear reached as it can be in no other way, and the progress of an insidious disease stopped. This operation has been perfected during the past seven or eight years; as a rule, many persons wait until extreme deafness is present before they seek such a method for relief.

To avoid the fatigue arising from prolonged attention, call upon the eye for assistance. The sense of hearing is so commonly regarded as the only medium through which spoken language is understood, that it is difficult for most persons to realize the possibility of reaching the same result by any other means. The adult slowly losing aural perception finds most of the pleas-

ures of life slipping out of his reach; he is gradually but surely shut in upon himself. This is because he has not learned to make one sense act in place of another. Through hereditary influences he has acquired language by the ear; through educative means he may continue to enjoy conversation by the eye. Everyone who is conscious that his powers of hearing are diminishing should remember that the lack of one sense may be nearly made up by the increased acuteness of all the others, and should strive to form the habit of looking at the faces of those with whom he converses. It is not to be expected that the eye will help him at once to understand what is said. There is no royal road to speech-reading, any more than to music or mathematics. We must learn to do slowly and surely before we can secure ease and rapidity.

The organs of articulation are more or less hidden, but their activity produces effects on the muscles of the face. These effects may be called pictures; they are memorized, and the eye is trained by practice to follow the chang-

ing of one into another and to associate each with the sound thus formed. Printed and written words—even the newly-coined ones—are but arrangements and rearrangements of the simple alphabetical characters; spoken words are groupings of the elementary sounds of the language. One familiar with the letters can recognize the printed word, and one equally familiar with the appearance given to the features by the various elements can grasp the spoken word. By a knowledge of the different expressions, the eye is enabled to perceive a combination of two or more when given slowly; by practice the ability is acquired to follow a rapid play of the features. Words are thus learned; next, short colloquial phrases; and, later, whole sentences. Finally, a complete thought is thus conveyed to the mind. This is illustrated by the fact that in time the pupil will give a synonym instead of the actual word spoken. This peculiarity is an interesting proof of the direct communication between the eye and the speech-centre, developed by educative means, and finds its parallel in our usual in-

ability to give the exact words we have heard spoken, though we can readily express the thought clothed in our own language.

Speech-reading acquired to this extent is unaccompanied by a consciousness of the medium through which ideas are conveyed, and becomes a thoroughly satisfactory method of communication. Those who, from lack of confidence, feel that they can never attain this art should remember that they did not learn to scan a page in a short length of time. They may have forgotten how they were taught to read—if in the old-fashioned way, let us hope they have—but they may form some idea by taking up the study of a foreign language.

In a public place we see groups of people engaged in animated conversation. We see the interest in their faces and the expression of their eyes; we almost know their words. We may know them if we apply the science of physiognomy, combined with a knowledge of the movements articulation gives to the features. The eye can take upon itself certain duties of the ear. At first it is untrained. To the be-

ginner, the motions of the organs of speech are too rapid to convey any impression of what is said. Their definite positions can be learned, and with them the fact is grasped that the varying expressions caused by them are flitting pictures which, in connection with the language of the other facial muscles, transmit the ideas of others to the brain of the deaf or partially deaf person. One is fully conscious of using a new instrument; the strangeness of it makes more impression than the thought conveyed. Frequent journeys over a new path make a beaten track; the notched trees are no longer noticed; one is sure of his road, and speeds on his errand. Thus, in time, an idea may be received without consciousness of the medium by which it was conveyed.

This method of communication has been called lip-reading; but more is seen than the motions of the lips. It has also been termed speech-reading; but more than speech is conveyed. The spirit of the thought and the emphasis of the voice are transmitted as well as the mechanical action of articulation. The appear-

ance of words on lips and tongue is but a part of this expression-reading. A defective auditory sense is not necessary to the acquiring of this art. Articulation-teaching to the deaf demands a sensitiveness of hearing; yet probably there is no one engaged in the work who does not put his knowledge of speech-reading to various practical uses. Such teachers are able to give valuable aid to adults growing deaf, and should be sought by them for the purpose of being started rightly in speech-reading. Some people can develop an unconscious use of this method of communication. They will acknowledge that they can hear better if they can see the face of the person talking; but in many cases they are not convinced of sight acting in the place of hearing until experiment has proved it beyond a doubt. Instances have occurred of such persons understanding conversation conducted in a low voice while watching faces, though shouts made at the same time by unseen people at short range did not disturb them.

Quite as interesting is the statement of some persons that they can follow by the eye what is

said, if the subject is only made known to them in advance by a loud voice or in writing. Similarity of thought has developed stereotyped forms of expression. The vocabulary of the average man and woman is limited. Given the conversationalist and his subject and you have the key to his words. This fact explains why conversation through the eye to a certain extent can be understood by many. If no greater proficiency were attainable it would be comfort to the thousands, young and old, who to-day are living isolated lives in the midst of excitements they long to share. However, special instruction would assist the diffident ones and put all on sure ground.

Deaf people are sensitive and painfully realize the publicity given by talking to them in a loud voice. A slight hold on the accomplishment of expression-reading would enable them to keep in touch with much around them, and a stronger command would put them in cordial relations with the world's workers. The older people regret to see so much slipping away from them; it is hard with ripening experience and fuller

appreciation of life to find various interests disappearing one by one. Statistics show that there are in this country an immense number of persons under twenty-five who have only recently grown deaf—young men and young women who have never had an opportunity to taste what the older ones are relinquishing! Speech-reading can help these people. With every incentive to exertion, they can acquire increased power of observation, make use of a new mode of communication, and be better able to take their rightful places in the world.

CHAPTER VIII.

DULL PUPILS.

IN the schools there are many dull pupils. Why are they dull ? Because an utterance of the teacher reaches their consciousness only after a considerable interval. Being slow in hearing, they are, in consequence, slow in replying. They are easily embarrassed; they forget what they were going to say, or fail to make the vocal organs obedient servants to their wills. The same children frequently show an aptitude for work in lines which require a different set of faculties. Many a child is considered stupid who is merely suffering from a defect in hearing. Before classifying pupils it should be the practice of teachers to test the children's auditory sense. It is equally important to ascertain the length of time requisite for each one to prompt his vocal organs in imitations; and if it be

longer than normal the faculty should be educated to quicker operations.

Many an adult is obliged to retain a humbler place in life than he might occupy if he were not slow of comprehension. We do not make sufficient allowance for the fact that considerable time is necessary for the auditory nerve to carry its message to the brain, and that, after it has performed its errand, other nerve-centres must grasp the meaning of the words heard and prompt the right impulse to action or speech. Some persons require a longer time than others for these mental operations. Public speakers sometimes fail to observe this with cultivated audiences. Perfectly familiar with the thought of their discourse or recitation, they forget that it is new to others. They speak rapidly in disregard of the efforts of their listeners to hear the words and telegraph to various parts of the mental machinery for light on the meaning; and afterward the speaker wonders why some charming poem or patriotic effusion has fallen flat. Railroad officials recognize the fact that greater speed may be attained in conveying trains over

the threads of steel encircling the country, but that the limit of human nerve to endure the strain of guiding the iron steed has already been nearly if not quite reached. The locomotive may go more swiftly than the engineer's eye can read the signal or his ear perceive the sound of danger.

It is a curious fact that only a small minority of people hear well. The large majority possess a peculiarity that is oftentimes extremely slight. It is not unusual for one aural organ to be in better condition than the other; in this case, the difficulty with the poor ear is purely a functional disability. There are many persons who have a defective musical faculty; a few are absolutely unable to distinguish one tune from another, or take refuge in the thought that they do know "Yankee Doodle" if nothing else. Some who readily perceive the sound of the human voice cannot hear certain high notes. A curious instance is that of a leading journalist in the West who was twenty-five years old before he knew that the singing of birds was not a poetic myth. He never was able to hear it, and presumed

that others could not do so but that they liked to keep up the delusion with regard to canaries and robins, though willing to say the death-song of the swan might be looked upon as a pleasing fiction. One of my pupils, who had great difficulty in hearing what was spoken within two inches of his ear, always enjoyed the birds' morning song. Many can hear a whistle and nothing else.

If the slowness in receiving sound be of marked degree, it interferes with the orderly growth of the speech-faculty. I have already described extreme cases in Chapter VI., but at present I refer to those individuals who know there is such a thing as sound and who wish to speak but find difficulty in so doing. In some cases there is a slowness in receiving sounds and in others, in the directing of the vocal organs. The various defects in utterance will be considered in the following chapters; the subject of our attention now is backwardness in speech due to slowness in receiving sounds. I have found interesting phases of this peculiarity among my pupils. The type may be represented by the

case of a boy aged six. He had attended a kindergarten for two years, but had learned scarcely anything. He did not attempt to join in a song. He seldom spoke and what he did say was unintelligible except "I no know" in answer to any question. He never told of anything he had seen. "He has no memory," his mother said. Beyond the amount necessary to make him obedient, he had, indeed, no memory for linguistic sounds, and was, therefore, at a mental standstill. He was taught to speak by showing him the movements of the vocal organs, and afterward he learned to hear sounds. He looked like another child. His mind was awakened; he proved to have an excellent memory, and in six months he could read remarkably well. This was a most pronounced case, but there have been others just as serious, or nearly so, and it is cited to show how much can be overcome.

Special instruction such as this boy received outlines certain educative means by which the dull are stimulated. Teachers recognize more and more that their work is something different from merely hearing recitations. The mental

awakening of their pupils is an important trust, and one of the chief ways of securing it is skilfully to direct the sense of hearing to perform its duties. At the present time sight is receiving an undue measure of regard; every effort is being made to teach children to observe. If, however, they are backward in speech, it is necessary to divert some of this tendency to use the eyes; otherwise, all the mental energy is spent at the expense of the hearing faculty. Children who do not learn to speak well at the normal age require careful attention in this regard. They will either manifest a decided preference for seeing, or else grow indifferent and become dull and stupid pupils. If one has had his development of speech retarded, he is soon in the unfortunate position of having ideas beyond his verbal expression; his vocabulary increases and soon imposes upon his vocal organs the most impossible feats. This is a critical condition and may, if not properly cared for, lay the foundation for stammering.

Special education of the hearing opens an important field for teachers of all classes of chil-

dren. Certain requirements must be possessed by the one who undertakes this work. The most important is a scientifically correct knowledge of phonetics, by which we mean an accurate knowledge of the exact positions and actions of the vocal organs in speech. Without this, it is impossible for the teacher to judge from the sounds made by the pupil of the precise condition of the various muscles used; and to be unable to do this, prevents him from knowing whether the difficulty is a defect in the receiving of sounds or a failure to properly direct the vocal organs. If primary teachers were qualified thus to analyze their pupils' condition, they could accomplish results that would greatly diminish the number of dull scholars in the higher classes. A prompt connection between the ear and the organs of articulation betokens an activity which brightens the entire mind; and in the securing of this, there may also be developed a fine appreciation for correct sounds in a child previously under the pernicious influence of "baby-talk."

CHAPTER IX.

INVENTED OR "PATHOLOGICAL" LANGUAGE.

OCCASIONALLY we hear of a child who has apparently invented a language of his own. A London medical journal has given to this peculiar speech the name of "pathological language." It is unintelligible except to the child that originates it, and offers little or no resemblance to the language he has heard spoken. A number of such children have been under my care; all of them acquired distinctness of speech in a comparatively short time. They had been unable to profit by attendance at school while suffering from this peculiar condition, but after attaining fluency of utterance their progress was rapid. Bearing in mind the fact already emphasized, that there can be no orderly progress in mental development without language, it is easy to understand how these

children were handicapped. A language unintelligible to others necessarily failed to give expression to their ideas. Utterly without a medium of communication with those about them, except in the simple signs to which they resorted, they were unhappy indeed. Some of these children appeared to have feeble, flabby tongues, and others a lingual member too large for their mouths. Many of them were strong and energetic in body; a few were delicate, and slower in learning to speak well.

It is not uncommon for a child imperfectly to pronounce certain sounds of the language; many a little one fails on *s* and says "'orry" or "thorry" for "sorry." A peculiarity not so frequent is the habitual use of some one portion of the vocal organs in place of another, after the individual is far beyond babyhood. A case in point was that of a boy of twelve, who was unable to use in speech that part of the tongue between the top and point which is employed in forming *s* and *z*, and who had an over-activity of the back of the organ. In consequence, he made *k* or *g* and occasionally *h* in place of the

above-mentioned letters. When he spoke sentences containing few hissing sounds, it was quite easy to understand him. "I go to study sounds" became "I go to hudy hounk." "Sister" was pronounced "higter." It was plain that he meant "It is a pleasant day," when he said, "It ig a pleagant day;" it was far more difficult to understand him, however, when the simple question "Is Augustus sick?" was changed to "Ig Auhugtug hick?" He was a bright, sensible boy, keenly alive to the amusement his peculiar utterance afforded his playmates. A physician had said that in his opinion the difficulty was due to an unusually high arch of the hard-palate and, therefore, without remedy unless a plate were inserted. Unfortunately, such a decision has been made in other instances; but a false roof in the mouth does not improve such speech. Control of the tongue is needed. In this case, as with others, a correct pronunciation was attained by special instruction.

A curious phase was presented by a girl of thirteen, who had attempted to speak German as well as English, both being spoken in the

family. She suffered from marked unwieldiness of tongue, and these efforts proving futile, she developed a language possessing many sounds of English and German, which was utterly unintelligible to others.

Believing that the instances of invented or "pathological" language, so-called, are of the nature of those just mentioned, though differing in degree, I have critically analyzed their elements, and taken notes in the symbols of Bell's system of scientific phonetics. These symbols are based on the positions of the vocal organs assumed in articulating, and are known as Visible Speech or Universal Alphabetics. Two of the most interesting cases were brothers, eight and six and a half years old. They were bright boys, energetic in manner, manifesting no peculiarity other than that of defective articulation. Often the parents and nurse failed to understand their simplest wants, and never were able to make out their descriptions of any sight or occurrence. The elder boy developed a tendency to gesticulate; the younger was becoming morbidly sensitive. They understood each other

at all times, having a language of their own equal to all their demands. When talking together, their speech was rapid, but when requested they would repeat a word or a sentence for me slowly a number of times, always giving it in exactly the same way no matter how frequently it was called for. Their education was at a standstill. Efforts had been made to instruct the older boy; the result was utterly discouraging. The children belonged to a cultivated family, who highly appreciated the importance of a liberal education; yet by reason of their peculiarity of speech, they were absolutely out of reach of any school benefits. I quote from my note-book. Two pronunciations of the same word are given in some instances, which indicate a difference of articulative action in these brothers, but still the sounds are so nearly alike that the resemblance may be easily traced:

Wee' wah Ah-wah'-wee—Lexington Avenue.

Papa kah koo kă—Papa brought him some.

Kee'-ya mah moo-kă'-ya ōpŭ gă'ya?—See my moustache over there?

E waw Mă'-e-waw Ah-wah-wee—We walked on Madison Avenue.

Ah dee dah Ah-wă-ya dee dah dă'-ya—I am going to tell Alice to sit down there.

Mamma hah dă'-kŭ—Mamma has a headache.

Kah goo, kă kee goo—That is good, very good.

Dah dee nah wŭ—That is a nice one.

Ah wee gaw koo—I had gone to school.

Kah kee koo kee'-ya—Someone is in there.

Kă-koo bŭ mŭ—Thank you very much.

Ah kaw koo pă'-ya—I like to play.

Wŭ wee wŭ-daw'—We saw out of the window.

Mamma dĕ dă mŭ dee moo—Mamma taught that to me this morning.

E wah dah wah-gŭ—He lay down on the sofa.

E wah Wă'ya—We walk with Alice.

Koo kaw kee-kee—New York City.

Ah dah bĕpŭ—I have breakfast.

Papa kaw ah—Papa taught me.

Pă goo bah—Pretty good boy.

Pee pă'-ya—Piece of bread.

Koo-e kă'-ya—New Year's cake.

Paw Bah—Post Office.

Bee-bă—Speak plain.

Goo pă koo—New pair of shoes.

Dă bee goo—That is good.

Opŭ gă'-ya—Over there.

Ah wah—Three yards.

Bŭ hah—Build houses.

Mă-bee—Mantelpiece.

Doo moo
Koo-moo'-ya } —Good morning.

Koo-ă-ngoo
Doo-ă-noo } —Good afternoon.

Dă-wă'-we—January.

Wĕ-wee—February.

Doo-wă'-ya
Koo-wă'-ya } —July.

Dă'-dă
Kă'-kă } —Sunday.

Măw'dă
Maw'-kă } —Monday.

Koo-ka—Tuesday.

Wŭ-dă
Wŭ-kă } —Wednesday.

Goo-kă—Thursday.

Baw'-kă—Friday.

Kă-ee-kă—Saturday.

Wah—One.
Koo—Two.
Kyee—Three.
Paw—Four.
Pah—Five.
Kee′-ya—Six.
Kă-kee′-ya—Seven.
Wă-ya—Eight.
Nah, *Ngah*—Nine.
Kă—Ten.
Wă-kee-kah—Eleven.
Ka′-kee—Twenty.
Kŭ-kee—Thirty.
Aw-daw′, *Aw-gaw′*—Why.
Wă mah—Last month.
Wă-ngah—Last night.
Doo-dă′-ya, *Koo-dă′-ya*—Sugar.
Bŭ-wă′-ya—Banana.
Aw-kă′-ya—Orange.
Mă-ya-wŭ—Macaroons.
Waw-mee′-ya—Oatmeal.
Mĕ—Meat.
Bĕpŭ—Breakfast.
Baw—Butter.
Pŭ-kă-kŭ—Potato.
Wă-ya—Lamp.
Waw-pah—Umbrella.
E, *Ek*—Yes.

Gah-baw—Forgot.

Wah baw pah—145.

Analysis reveals the fact that the sounds used in the foregoing list are formed, almost without exception, by the lips and the back of the tongue. The exceptions are the vowels *e* long and *a* short, and the consonants *d*, *n* and *y*. *E* requires the top of the tongue, which is in close relation to the back, to be raised very nearly to the hard-palate or roof of the mouth. This position accompanied by friction of the voice, instead of a steady vowel-quality, gives *y* as in the word *yes*. The latter was an exceedingly frequent sound in these children's language. Short *a* is a front vowel, but requires a low position of the tongue. *D* and *n* were not formed correctly, by raising the front edge of the tongue to the upper gum, but by a forward pressure of the entire organ, as it lay in the bed of the jaw, against the lower front teeth. The absence of the sounds of *s*, *z*, *sh*, *l*, *r*, and others common in English will be noticed. It was impossible for either child, when asked, to lift the point of the tongue to the upper gum or to push the

organ forward far enough to touch the lips; yet both were able to manage it properly for the purposes of mastication.

These children showed no defect in the perceptive functions of the brain. They could locate sounds with ease, enjoyed being read to and looked forward to the story-telling hour. They frequently accompanied their father in walks and drives, showing an interest in their surroundings; but inability to express themselves was becoming a saddening circumstance in their lives. Another proof of the correctness of their powers of hearing and their intention to imitate and not to invent was manifested in their consciousness that what they said was not right. As an example, I asked them once how many books were on the table, they answered unhesitatingly, "Kee-ya." "No," I said, "not kee-ya; there are six." They assented quickly, repeating "kee-ya" with emphasis. I said "kee-ya" in reply, but they told me that was not right. They knew I had pronounced the word in their way, but showed most unmistakably that they realized how widely different it

was from what they had attempted to say. They were so distressed that it was necessary to turn the subject quickly.

It seemed clear that the condition of these boys was the result of serious disturbance in the speech-impulse, due, perhaps, to a congenital defect; and that the brain had failed to bring under control certain portions of the organs of speech. They were taught to use the disabled parts and gradually obtained complete mastery of the various actions necessary for correct articulation. As an interesting indication of the stage of transition through which they passed, I add a list of words as pronounced by them in rapid conversation with each other, after they were able, by taking extreme care, to speak comparatively well.

Kă be nā cat—That is the name of the cat.

Awbaw kee mee wah—About the middle of the week.

Wah aw bă-baw—Write on the blackboard.

Wah gă gam-law-ade—One glass of lemonade.

Mamma kă mē-kă'-ya—Mamma made a mistake.

Three pē'-ya be gă'ya—Three pieces are there.

Kă be kĕ—That is a check.

Dee too pā mō—This tooth pained most.

Kă bee koo hah bee'-ya-bă—If that is too hard bring it back.

Letterday my collar gŭ-lee—Yesterday my collar was dirty.

Kă be tee (*t*); *where, ka be w*—That is t; in where there is a w.

Inĕ hŭ a-wiminee—I never studied arithmetic.

Ree kă pā—Read that page.

Noo Kaw Tick-Tee-lee—New York City.

Wă-kŭ pā-gŭ—Asphalt pavement.

Waw Pain—White Plains.

Maw Bŭ—Mount Vernon.

Wee bee—Elevated.

Kŭ koo—Little cool.

Găm-ă'-ya—Gentleman.

Tack-tee-baw—Twenty-five.

Waw-ee-eng—One hundred.

Dĕ-tŭ—Dentist.

Dah-ee—Stockings.

Bĕ tah
Bĕ-kah } —Blanket.

Tah' tah—Collar.

Kŭ—And.

Gaw-bĕ—Strawberries.

Kā-sing—Same thing.

Gă-gaw—Santa Claus.

Kă-aw—Drive the horse.

Kĕn—Then.

It will be noticed that grammatical errors were committed. The boys rapidly acquired the art of arranging words correctly in sentences; and in a few months were able to take their rightful place in school. From extreme unintelligibility they grew into a surprisingly correct and fluent utterance. In common with other persons possessing a similar peculiarity, they lost all recollection of their former language. In it there were no personal pronouns, no possessive case, and only one conjunction, namely, "kŭ" for "and."

CHAPTER X.

LISPING AND CARELESS SPEECH IN GENERAL.

A LISP is not pleasing in an adult, however charming it may be in the child just beginning to talk. Many an agreeable impression is dispelled when a stranger opens his lips and exposes an infantile pronunciation. Clear, crisp articulation is in keeping with the dignity of business, professional, and social life. It is to be expected that childish things have been put away, even if there be lacking the finish and ease in which the cultivated ear delights. Lisping is caused by wrong management of the tongue, and is a sure indication of pronounced forward action of the organ. The individual who lisps places his lingual member in positions that change the pitch of all breath-consonants, and, consequently, injure the vocal quality of the others and mar the beauty of the vowels.

Granting that in some instances there may have been unusual helplessness of the tongue, the defective utterance known as lisping is caused in the main by lack of proper attention on the part of parents and teachers during the pupil's early years.

There is a surprising want of knowledge among instructors of little children regarding the principles of articulation, which might be excusable among the educators in higher grades, who are not supposed to give attention to elementary work, but which is lamentable among those who have an important influence in the formation of lifelong habits. With all due respect for the sanction which some prominent instructors give to the sentence-method of teaching pupils to read, I fear it will only increase the slovenly speech of American children. Not that I would advocate the old method of teaching the alphabet. On the contrary, I would urge that teaching to read be an exercise founded on knowledge of the mechanism of speech.

Perhaps a brief analysis of the elements of articulation may explain the matter. Voice, as

we already know, is the vocalized emission of breath. Any single, open position of the mouth will mold the voice into some vowel-sound, and can be prolonged to the limit of the breath, though such an exercise should be indulged in with caution. Consonants are formed by the lips or by some portion of the tongue, which more or less obstructs the current of vocalized or unvocalized breath. Therefore, within the cavity of the mouth there must be many delicate movements and agile changes of positions during the act of speaking. Let us analyze a word, taking "black" as an example. The first sound, *b*, requires a gentle closing of the lips, which is maintained while the breath is being vocalized in the glottis. As the mouth opens, the tip of the tongue must be raised to the upper gum in such a manner as to allow free egress of the voice on both sides of the organ, for the *l*. A free, flattened condition of the front half of the unruly member must be obtained for the vowel *ă*; and the back of the tongue must be raised against the soft-palate and lowered with an expulsion of breath, to complete the word.

Are we to be conscious of all these intricate operations when talking? Certainly not. Yet a knowledge of their movements should be familiar to those who direct the early articulative efforts of the child; they could then skilfully lead him through difficulties, instead of allowing him to struggle without assistance. We are carefully taught how to use our feet in the wonderful process of alternate falling and balancing which is termed walking. Hours are set apart for particular instruction in the art of dancing. Gymnastic exercises are deemed worthy of the wise direction of the medical mind. There are innumerable accomplishments and arts which, in the judgment of parents, demand a special instructor. Why should the divine gift of speech be left to unguided instinct? The young child is at the mercy of his models in articulation. Should they be defective through carelessness or from a serious impediment, his ear becomes accustomed to wrong standards; later, he will have much to unlearn. Should he be favorably situated in this respect and hear correct pronunciation almost constantly, his effort will be to

copy his ideal. It is generally conceded that the early surroundings of children influence the grammatical construction of their sentences, and that the best schools cannot impart a spontaneous use of good language, such as may be unconsciously assimilated from example in the home. To some extent, the same principle holds good with the voice and articulation; but the primary teacher bears a heavy responsibility.

Foreigners severely and justly criticise the American voice. They say it is loud, sharp, frequently nasal, and usually uncultivated. There is musical appreciation enough in our nation to prevent these peculiarities, and it lies with the teachers of the rising generation to work a tremendous change in this respect. They certainly can do it. It may be very well to excuse ourselves with vague generalities about our national nervousness and constant stir and push in life. Such being our state of existence, the children should be taught to conserve their force. They should not extravagantly expend their vitality in wrong efforts, by which they become breathless and their vocal bands are strained.

Correct articulation is a means of mental development, and exercises to insure it have a beneficial effect upon all the nerves, making them more expressive agents of the mind. Correct articulation also leads directly to correct use of language, whereby are revealed culture and refinement.

The efforts of the teacher in the schoolroom can remove the peculiarities of slovenly speech and raise a pupil's standard of what is proper; but it requires more thorough knowledge than could be generally obtained to remedy serious defects in utterance. Stuttering and stammering demand the attention of the specialist, and doubtless the same is true in all instances of marked inability to use some one or more portions of the articulating organs. Yet even the teacher of primary grades, after experience with children, could render great assistance to persons whose utterance and handwriting have been changed by serious illnesses affecting the brain. Careful speech-training has restored these functions entirely. Defects in articulation that are due to a paralytic condition may be somewhat

helped but are not included in the list of curable cases, except in young children.

English has been called a hissing language. However much the fastidious foreigner may criticise this peculiarity, the native ear objects to a flattening of the sound of *s*. Let it be clear. A lisping articulation would utterly fail to give the desired effect of insects' buzzing in H. H.'s "Sonnet to August:"

"Silence again. The glorious symphony
Hath need of pause and interval of peace.
Some subtle signal bids all sweet sounds cease,
Save hum of insects' aimless industry.
Pathetic summer seeks by blazonry
Of color to conceal her swift decrease.
Weak subterfuge! Each mocking day doth fleece
A blossom, and lay bare her poverty.
Poor middle-agèd summer!"

CHAPTER XI.

STUTTERING AND STAMMERING.

SPASMODIC conditions distinguish the defects of speech known as stuttering, stammering, and convulsive hesitation. This fact alone denotes a deranged nerve-function without the existence of muscular or even nerve-lesions. The individual may talk smoothly for a considerable time and suddenly be seized with a paroxysm severe enough to distress the beholder, or with an utter inability to speak, or with a rapid repetition of the initial sound of a word. The difficulty lies in a disturbance in the regulation of the speech-impulse.

It is not unusual for a child to show a tendency to stutter in his comparatively early efforts to talk, but seldom in his very first attempts. There seems to be a time when the child's ideas flow faster than his vocal organs can act, and he

splutters through the story he wishes to tell. Then is the critical moment. He should be stopped with great gentleness to avoid startling him, and told to go over the words again. No allusion should be made to his impediment; on the contrary, he should simply be told that he was not understood and that attention will be paid to him if he goes through the sentence again. Under this quieting influence, he will speak smoothly. He will stop to consider what he wanted to say, decide upon the words, and then give a prompt but not hurried impulse to his articulating organs. Never under any circumstances let him hear remarks about his defective utterance. He should not have that held up to his alert, imitative faculties. Instead of that he needs, more than other children, a constant repetition of correct forms of expression.

Do not tire of repeating sentences to him. Remember that by that exercise alone you are keeping fresh in his memory the words he should use; the oftener he hears them the easier it will be for him to repeat them. A direct connection is thus established between his ear and his or-

gans of articulation; he will not have to stammer mentally in a blind seeking for his words. It is not well to give him too full a vocabulary; he might lose time in selecting from it. Hence, he should be taught to command a few expressions with precision and accuracy.

Unfortunately, this course is seldom pursued in instances of stammering among young children. Too often they are harshly reprimanded, and more frequent reference is made to their mistakes than to their successful speech. It is not unusual for parents to say that they know their children are not in the least sensitive about their defect because it has been commonly discussed in the family circle; and that, if they were only willing to make an effort, they could speak as smoothly as anyone.

The speech-impulse being disturbed, the various parts of the vocal apparatus are put under an uneven strain. The tongue becomes clumsy; or there is difficulty in managing the contraction and relaxation of the vocal bands; or, through wrong action of the intercostal and other muscles, defective circulation and respiration com-

plicate matters. All of these peculiarities require careful attention from the specialist. No pains should be spared in securing relief from these conditions for every child. It will not suffice to wait for him to cure himself. Some resolute souls may have conquered this impediment, but they are few in number compared to the many who continue to suffer in various ways from this great disadvantage.

Some parents severely but unconsciously hurt their children's feelings by telling them that they must take their pleasure in expression by writing instead of by speech; as if that medium of communication alone could satisfy! The moral effect of the stammering habit is the development of secretiveness; and this element of character should be dealt with gently while the distressing impediment continues.

It will be seen that stuttering and stammering are difficulties in expression, and not in the perceptive functions; yet their variable quality and intermittent character show a wide difference between them and the peculiarity described as invented language. However, the habit of

stammering may develop in a child whose speech has been retarded by the latter phase of defective utterance or by a slowness in receiving sounds, because of the fact that his ideas are beyond the ability of his articulating organs. A little care will prevent disastrous results. In some cases, the difficulty in regulating speech has been increased by a feeble condition of body due to illness or a weak constitution. In consequence, there may exist flabbiness of tongue, unwieldiness of the cheek-muscles, a relaxed state of the soft-palate or a stiff action of the lips. These complications demand extra care on the part of the specialist. It should be remembered that the brain is the controlling agent, and that, therefore, all exercises must be gone through by the pupil while in full sympathy and effort, and that they should be based on the method by which the normal child passes necessarily through the stages of speech-development. The weakest point in the articulating organs should next receive attention. It is absolutely necessary that the pupil be taught to exert his will-power in directing the vocal organs.

While enfeebled by illness, a child has sometimes been subjected to a great fright, a severe fall, or to some form of ill-treatment, and a stutter or stammer will be one of the effects. Children who possess an unusual amount of the imitative faculty have been known to contract an impediment of speech, sometimes through the unconscious influence of the habit in others, and often after mimicking the peculiarity.

Adult stammerers may be relieved to some extent, and, under favorable circumstances, cured. There are certain habits manifested by them besides those already mentioned. The head is badly managed; it is thrown upward during the act of speaking and is unstable. Some persons hold the mouth wide open at times, as if unable to close it; others keep the lower jaw raised too high, leaving but a narrow aperture for the voice and decidedly cramped quarters for the tongue to move about in; while the faces of most stammerers twitch and quiver at times. Stammerers inflate only the upper part of the lungs, and are thus unable to take a long breath without raising their shoulders. To

remedy this condition it would be well to practice a simple exercise; and this is said advisedly, because much harm may follow the injudicious use of certain breathing-exercises. The safe exercise is done while the pupil is standing erect, the arms being slowly raised until the backs of the hands touch over the head, while the mouth is closed and the breath inhaled through the nose; then the arms are slowly dropped to the sides during a long exhalation. As the attention is fixed upon the arms which are well raised, the lungs have an opportunity for unrestricted play. This exercise might be practiced to advantage perhaps twenty times night and morning. The habit of correct breathing will be slowly acquired by this means, and it will be normal because no attempt has been made forcibly to inflate the lungs.

At all times when a difficulty is experienced in talking, the lips should be lightly closed. Then, before opening them to speak, a natural inhalation, not a deep one, will be taken, and will greatly relieve the speaker. A desirable accomplishment is the careful "spinning out"

of the breath. Too often there is an extravagant waste of it while the cords are slowly adjusted for the formation of voice. Vocalization should take place immediately after the mouth is opened.

To the adult, knowledge of the principles of correct speech is of great value. He can then analyze the effects upon the various parts of his vocal apparatus which have been brought about by unguided efforts to struggle with his difficulty. By degrees, the action of his lips, the point, top and back of his tongue, his soft-palate and cords, may be controlled through will-power, assisted by an intelligent perception of the duty of each part.

As a rule, the stammerer maintains a high position of the larynx. This organ should rise and fall without tension. It is most depressed during the sounding of the vowel *ōō*, and much beauty of expression is assured by its freedom of action. Its depression causes a deepening of the voice. Unequal strain, which is the result of blind struggle, can be overcome only by wisely directed exercises; an equilibrium is thus

established, and may be maintained by care. For a while, relapses must be expected. A habit of years cannot be removed by the efforts of a few hours. Patience and practice, however, are essentials that in time bring their own reward.

CHAPTER XII.

CLEFT PALATES.

THE soft-palate performs a very important function in the act of articulation. It is a curtain-like adjustment in the back of the mouth, and is connected with the hard-palate or roof. There are but three elements of the English language which require the current of voice to be directed through the nose; they are represented by *m*, *n*, and *ng*. Upon the soft-palate rests the duty of preventing any nasal quality in the other sounds. Refinement, and it is hardly too much to say intelligibility, of speech are thus directly due to the activity of this organ. If it is even slightly cleft, the articulation is sadly affected. Unfortunately, that condition is seldom confined to a small space, but is frequently carried through the hard-palate, and, in some instances, the jaw, and even the nostril

and the lip. In the latter case, the name "hare-lip" is used to describe the appearance. The cleft, being present from birth, unless operated upon, will interfere with the normal development of the entire upper portion of the mouth. In short, there will be practically no roof to the oral cavity, and correct speech is an impossibility. Food finds its way into the nasal passages from the mouth. The individual thus strangely afflicted shuns society and is shut out of all professional and most business pursuits. With him, existence itself becomes of little value. As will be readily understood, speech in these cases is defective wholly on account of the malformation.

An operation may be performed in such cases during infancy or early childhood, but it is one requiring exceedingly careful handling. If rightly managed, the two parts are so brought together that a complete roof is formed for the mouth, and it grows with the child's general growth. Often, however, there is a breaking away of the stitches, caused sometimes by the patient's crying, and a consequent irregular

pulling in various portions of the palate. There are instances of such an inadequate supply of material that the surgeon's efforts may, indeed, result in a roof for the mouth, but there exists a stretched, meagre apology for a soft-palate, which is completely useless for the purposes of articulation. A slight cleft may be operated upon to advantage even comparatively late in life; but the advice of an experienced specialist should be sought at the earliest moment if an infant is found to possess any abnormality of the mouth.

Even if the operation should be entirely successful, it will be necessary for the individual to receive special instruction in articulation. A complete roof to the mouth and a soft-palate of the proper size will not enable him to speak correctly. The voice will be as nasal as before, and the enunciation no less peculiar. The newly-formed curtain cannot perform its duties; seamed with a scar, it hangs limp and expressionless. It may seem ridiculous to expect any expression in a soft-palate; but, in truth, few people know how it ought to look. The ex-

perienced eye can detect, upon close examination, the habits even of this organ, just as it can tell by the shape of a mouth whether or not its owner speaks well. The normal soft-palate is in constant action during speech; its edges must be dropped whenever an *m*, *n* or *ng* is to be sounded, and quickly raised to turn the vocal current from the opening to the nasal passages in all other sounds of our language. The palate secured by an operation must be trained to the performance of this duty. Judicious exercises strengthen it; more flexibility of movement is obtained, and, by degrees, it becomes shapely and agile.

In instances of this kind, much care must be given to the tongue. Before the operation the back of that organ was never correctly employed in articulation, for the very good reason that there was nothing present for it to touch, no matter how high it may have been raised. After a curtain has been formed, the lingual member must be exercised in efforts to meet it.

When a soft-palate is formed by surgical aid; special knowledge is requisite for training it to

the successful performance of its functions; that knowledge, however, can accomplish the desired results with surprising promptness. In a comparatively short time the parents may forget their child's former affliction.

Supposing a cleft to be very serious, or that it has been neglected through ignorance of the importance of an early operation, excellent results may be obtained by means of an artificial roof to the mouth. A dentist can make such an appliance almost as easily as a set of false teeth. However, he should exercise great care in shaping it. As far as possible the grade or curve of the normal palate should be reproduced, in order that the voice may be properly guided out of the mouth. The back portion should be very thick, and, consequently, hollow, to prevent undue heaviness. The thickness is necessary to keep the breath from too freely entering the nasal passages. It will be remembered that the artificial appliance cannot act as the natural palate does; hence, to prevent nasality, there must be bulk enough to the former to serve as an obstruction in the passage to the nose, and

at the same time, an extra effort must be exerted by the muscles of the pharynx to divert the current of vocalized or unvocalized breath, and throw it forward into the cavity of the mouth. The result of this achievement is a deepening of the tone, which is a most delightful contrast to the previous twang. Of course, the aid of a specialist is needed in these cases, and such aid enables the pupil to speak with correctness and ease, and to feel that his former condition need not be known.

There may be considerable nasality in a voice, even if the palate is not cleft. Sometimes a flabby condition exists and consequent inadequate action of the organ, which is manifest in the speech. That state can be overcome with ease. Gymnastics for the soft-palate may be somewhat unknown, but they are certainly deserving of respectful attention. The nasal twang, in certain cases, is the effect of injuries received in childhood. A broken nose may apparently leave no more serious result than a somewhat disfigured member. Such is the formation of this important feature, how-

ever, that the blow may interfere with its normal development, and produce an unevenness of growth and consequent crookedness in the nasal passages. A deviated septum and some other conditions due to such an injury may be operated upon to advantage. Hypertrophied turbinates, diseased tonsils and adenoid growths are other causes affecting both voice and articulation, and may be prevented and sometimes removed by proper hygienic measures.

It is well to remember that, just as good speech requires a complete absence of nasal quality in all the sounds of our language except three, it also demands a healthful condition of the air-chambers and other resonators of the voice, which occupy about one-third of the space covered by the face.